

Hydrocarbon Solvents for Chamber Testing

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American Chemistry Council
Hydrocarbon Solvents Panel

California Air Resources Board
Reactivity Research Advisory Committee
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Hydrocarbon Solvents Panel

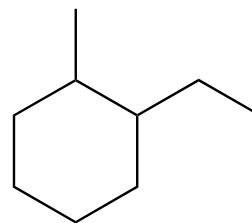
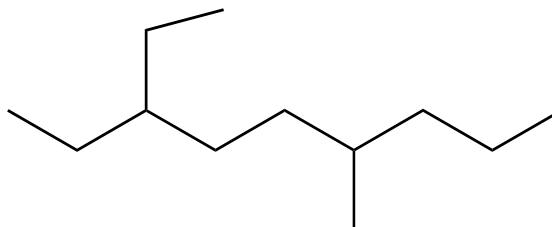
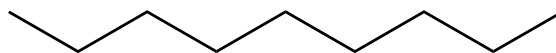
Members:

- CITGO Petroleum Corporation
- ExxonMobil Chemical Company
- Flint Hills Resources
- Sasol, North America, Inc.
- Shell Chemical LP
- Sunoco, Inc.

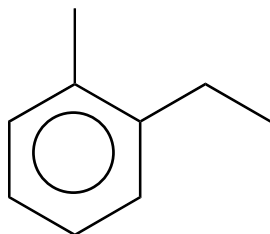
Hydrocarbon Terminology

Aliphatics

- n-paraffins
- isoparaffins
- cycloparaffins (naphthenes)



Aromatics



Hydrocarbon Solvents Overview

- Products consists of carbon (C) and hydrogen (H) molecules in the C₅-C₂₀ range
- Products composed of 2 major classes of compounds
 - Aliphatic hydrocarbons (normal, branched, cyclic)
 - Aromatic hydrocarbons (1 and 2 aromatic rings with alkyl side chains)
- Products are multi-constituent hydrocarbons
 - Classes: n-alkanes, isoparaffins, cycloparaffins, aromatics
 - Combinations/blends of hydrocarbon classes
- Physicochemical parameters are controlled
 - e.g., boiling range, isomeric structure/composition

Hydrocarbon Solvent Test Candidates

- See attached list of recommended hydrocarbon solvents.
- General types of hydrocarbon solvents commonly used in coatings.
- Loosely ranked. Panel believes all of these hydrocarbon solvent types are used in architectural coatings.
- Recommend looking at results of 2001 ARB Arch. Coating Survey before finalizing priority list.

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Recommended Candidate Products for RRAC Research

NO.	CHEMICAL	ASTM DESIGNATION	DESCRIPTION
1	Low Aromatic Mineral Spirits	D235, Type 1C	0-2% aromatic content, full distillation range (300-415F)
2	Stoddard Solvent (15-20% Aromatic Mineral Spirits)	D235, Type 1A	8-22% aromatics, full distillation range (300-415F)
3	V M & P Naphtha	D3735, Type IV	0-2% aromatic content, minimum flash point of 40 deg F
4	D60 (142 Flash) Mineral Spirits	D235, Type IIC	0-2% aromatic content, high flash point (142F minimum)
5	Aromatic 100	D3734, Type I	362F maximum dry point, 95% minimum aromatic content (mostly C9's)
6	Odorless Mineral Spirits	D235, Type III C-1	0-0.25% maximum aromatic, full distillation range, odorless, low olefins
7	Short Range Mineral Spirits	D235, Type IVC	0-2% aromatic content, low dry point (365F maximum)
8	7% Aromatic Mineral Spirits	D235, Type IB	2-8% aromatics, full distillation range
9	Heptane	No ASTM Std.	Low aromatic, C7 isomers
10	Aromatic 150	D3734, Type II	420F maximum dry point, 95% minimum aromatic content (mostly C10's)
11	Mixed Xylenes	D843	10-20% Ethyl Benzene, 80-90% Xylenes
12	D80 Mineral Spirits	No ASTM Std.	170F flash point, less than 2% aromatics